

# List of Supervisors and Research Fields

As of November 1, 2024

**Master's Course**

## Transdisciplinary Life Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Bioinformation and Molecular Science	Professor	OSE Toyoyuki	Protein, nucleic acid, enzyme, signal transduction, infection regulation, disease related factor, X-ray/neutron structural biology, cryo-EM, NMR, quantum biology, protein crystallography, computer science, protein science, biophysics <a href="https://altair.sci.hokudai.ac.jp/g6new/">https://altair.sci.hokudai.ac.jp/g6new/</a>
	Assistant Professor	INABA Satomi	
	Associate Professor	UEHARA Ryota	Cell division, ploidy, cytoskeleton, motor protein, self organization, cancer, aging, liver disease, microscopic analysis, biochemistry, molecular biology, cell culture, mouse model, transcriptome, mathematical modeling, compound screen <a href="https://altair.sci.hokudai.ac.jp/uehara_lab/">https://altair.sci.hokudai.ac.jp/uehara_lab/</a>
	Assistant Professor	ISHIHARA Sumire	
	Associate Professor	NAKAOKA Shinji	mathematical biology, systems biology, bioinformatics, microbial ecology, precision medicine, multi-omics, mathematical modeling, machine learning, big data analysis <a href="https://altair.sci.hokudai.ac.jp/infmcb/index-e.html">https://altair.sci.hokudai.ac.jp/infmcb/index-e.html</a>
	Assistant Professor	YAMAGUCHI Ryo	
Biomaterials Science	Professor	MONDE Kenji	Chemical Biology, Chirality, Organic Synthesis, Inhibitors, Vibrational Circular Dichroism, Helix, Lipid Mediator, Glycoconjugate, Medicinal Chemistry, Organic Probe Synthesis, Deep Tissue Imaging, Extracellular vesicle <a href="https://altair.sci.hokudai.ac.jp/infchb/">https://altair.sci.hokudai.ac.jp/infchb/</a>
	Associate Professor	TANIGUCHI Tohru	
	Specially Appointed Associate Professor	YUYAMA Kohei	
	Assistant Professor	SWAMY Mahadeva M. M.	
	Professor	TAMAOKI Nobuyuki	molecular machine, motor protein, photochromic compound, azobenzene, liquid crystal, self-organization, inter-molecular interaction, organic synthesis, nano bio-machine, single molecular measurement, chirality <a href="http://tamaoki.es.hokudai.ac.jp/english/index.html">http://tamaoki.es.hokudai.ac.jp/english/index.html</a>
	Assistant Professor	PADINHARE KAYAKALI Hashim	
	Assistant Professor	AMMATHNADU SUDHAKAR Amrutha	

## Transdisciplinary Life Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Functional Cellular Science	Professor Assistant Professor Specially Appointed Assistant Professor	NAKAMURA Kiminori  YOKOI Yuki  TAKEMI Shota	innate immunity, antimicrobial peptide, mucosal immunity, intestinal epithelial cell, Paneth cell, alpha-defensin, stem cell, intestinal microbiota, intestinal environment, inflammatory bowel disease, lifestyle diseases, mental health, aging, cancer, allergy, food and medicine, preventive medicine, therapeutics <a href="https://altair.sci.hokudai.ac.jp/infsig/english/">https://altair.sci.hokudai.ac.jp/infsig/english/</a>
	Associate Professor	KITAMURA Akira	Fluorescence Correlation Spectroscopy, Fluorescence Cross Correlation Spectroscopy, single molecule detection, neurodegenerative disease, ALS, glaucoma, molecular interaction, Live cell imaging, proteostasis, protein aggregation, C. elegans <a href="https://altair.sci.hokudai.ac.jp/infmcd/English/top_eng.html">https://altair.sci.hokudai.ac.jp/infmcd/English/top_eng.html</a>
Functional and Regulatory Life Science	Professor  Professor  Assistant Professor	NISHIMURA Shin-Ichiro  HINOUE Hiroshi  YOKOI Yasuhiro	Chemical biology, Medicinal chemistry, Glycomedicine, Automated glycosynthesis, Glycoblotting, Glycomics, Glycotyping, Glycobiology, Biomarker discovery, Dynamic epitope, Glycopeptide, Antibody drug, Glycoconjugates probe, Microarray, Glycoionization, Mass Spectrometry <a href="https://altair.sci.hokudai.ac.jp/g4/index.html">https://altair.sci.hokudai.ac.jp/g4/index.html</a>
Biomolecular Adaptation Science (Inter-field Cooperation with AIST)	Visiting Professor  Visiting Professor  Visiting Associate Professor	KOMATSU Yasuo  KONDO Hidemasa  HIRANO Yu	Antifreeze protein, Ice-binding function, Snow mold fungi, Gene expression, Protein crystallography, Biodiversity, Cell-preservation peptide, 3D molecular structure, Gene detection, Nucleic acid drugs, Functional DNA/RNA, Molecular detection, Cell-function evaluation, Electrochemistry <a href="https://altair.sci.hokudai.ac.jp/g_renkei/English/index.html">https://altair.sci.hokudai.ac.jp/g_renkei/English/index.html</a>

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## Biosystems Science Course, Division of Life Science

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Higher Order Cellular Functions	Professor Assistant Professor	FUJITA Tomomichi Marcel Pascal Beier	plant, evolutionary development, stem cell, cell polarity, cell cycle, cell proliferation and differentiation, environmental stress, mechanical stress, abscisic acid, moss, space utilization science, terraforming, <i>Physcomitrium patens</i> , <i>Arabidopsis thaliana</i> <a href="https://keitai1.sci.hokudai.ac.jp/en.html/">https://keitai1.sci.hokudai.ac.jp/en.html/</a>
	Associate Professor	NARAMOTO Satoshi	(1) Molecular mechanisms of polar auxin transport, (2) Evolutionary process of polar auxin transport, (3) Roles of auxin in the morphological diversification of land plants, (4) Adaptation to environmental stress, (5) Evolution of symbiosis and leaf morphology <a href="https://keitai1.sci.hokudai.ac.jp/en.html/">https://keitai1.sci.hokudai.ac.jp/en.html/</a>
	Associate Professor	WATAHIKI Masaaki	auxin, feedback gene regulation, live imaging, plant morphogenesis <a href="http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html">http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html</a>
Environmental Life Science	Professor Assistant Professor	NAKANO Ryohei Thomas Tomohisa Shimasaki	Plant and Microbial Molecular Ecology. Plant microbiota, plant-microbe interactions, growth-defense tradeoff. Plant and microbial molecular genetics, biochemistry, microbiota profiling, metagenomics, <i>Arabidopsis thaliana</i> , multi-omics, advanced bioinformatics. <a href="https://rtnakanolab.com/">https://rtnakanolab.com/</a>
	Associate Professor	ITO Hidetaka	plants, epigenetics, transposon, environmental stress <a href="https://sgd.sci.hokudai.ac.jp/">https://sgd.sci.hokudai.ac.jp/</a>
	Associate Professor Assistant Professor	SATO Takeo TAKAGI Junpei	environmental adaptation, ubiquitin signal, nutrient metabolism, signal transduction, nutrient stress, plant immunity, proteomics <a href="https://biol.sci.hokudai.ac.jp/en/">https://biol.sci.hokudai.ac.jp/en/</a>
	Professor	CHIBA Yukako	mRNA stability, stress response, arabidopsis <a href="https://chibalab.main.jp/lab/">https://chibalab.main.jp/lab/</a>

## Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Behavior and System Control	Professor Assistant Professor	OGAWA Hiroto FUKUTOMI Matasaburo	brain, neuroscience, electrophysiology, imaging, information processing, neural circuit, coding, sensorimotor integration, insect, electric fish, electrosensory system, electric communication, corollary discharge. <a href="https://ogawalab.sci.hokudai.ac.jp/English/">https://ogawalab.sci.hokudai.ac.jp/English/</a> <a href="https://researchmap.jp/matalab?lang=en">https://researchmap.jp/matalab?lang=en</a>
	Professor Assistant Professor	WADA Kazuhiro TOJI Noriyuki	vocal learning, critical period, epigenetics, neural activated gene, songbird, neuroethology, genome, behaviour, DNA methylation, stuttering ( <a href="http://www.wada-lab.org/">http://www.wada-lab.org/</a> )
	Professor	SOMA Masayo	behavior, cognition, communication, bird song, learning, life history <a href="http://www.lfsci.hokudai.ac.jp/search/system/soma.html">http://www.lfsci.hokudai.ac.jp/search/system/soma.html</a>
	Associate Professor	TAKEUCHI Yuichi	Laterality, Intraspecific polymorphism, Learning, Phenotypic plasticity, Neural circuits, Development of behavior, Evolution, Gene expression <a href="http://www.neuroecology-takeuchi.com/english.html">http://www.neuroecology-takeuchi.com/english.html</a>
	Associate Professor Assistant Professor Assistant Professor	TANAKA Nobuaki NISHINO Hiroshi Michael Schleyer	Drosophila melanogaster, insect, cephalopod, pygmy squid, sensory processing, learning and memory, decision making, neurophysiology, neuroanatomy, genetics, optogenetics, behavioral studies, pest control, biomimetics, dopamine <a href="https://sites.google.com/view/nktanakalab">https://sites.google.com/view/nktanakalab</a> <a href="https://www.es.hokudai.ac.jp/labo/nishino/research_english.html">https://www.es.hokudai.ac.jp/labo/nishino/research_english.html</a> <a href="https://www.schleyerlab.com/">https://www.schleyerlab.com/</a>
	Lecturer	TSUNEMATSU Tomomi	Dream, sleep, genetically engineered mice, electrophysiology, optical imaging, optogenetics and programming. <a href="https://www2.sci.hokudai.ac.jp/faculty/en/researcher/tomomi-tsunematsu">https://www2.sci.hokudai.ac.jp/faculty/en/researcher/tomomi-tsunematsu</a>

## Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Reproductive and Developmental Sciences	Professor	KATSU Yoshinao	endocrinology, steroid hormone, nuclear receptor, evolution, endocrine disruptor <a href="https://www.repdev-katsu.jp/index.html">https://www.repdev-katsu.jp/index.html</a>
	Professor Assistant Professor Specially Appointed Assistant Professor	KUROIWA Asato MIZUSHIMA Shusei YOSHIDA Ikuya	sex determination, sex chromosome, X chromosome inactivation, fertilization, evolution, the spiny rat, chicken, quail, mouse <a href="https://sites.google.com/site/kuroiwagroup/home">https://sites.google.com/site/kuroiwagroup/home</a>
	Associate Professor	KITADA Kazuhiro	model animals, human diseases, genome modification, gene function, mouse, rat <a href="https://www2.sci.hokudai.ac.jp/dept/bio/teacher/kitada-kazuhiro">https://www2.sci.hokudai.ac.jp/dept/bio/teacher/kitada-kazuhiro</a>
	Associate Professor	KOTANI Tomoya	oocyte, embryonic development, maternal factor, real-time imaging, zebrafish, mouse
	Professor Assistant Professor	KIMURA Atsushi FUJIMORI Chika	transcription, epigenetics, gene regulation, long noncoding RNA, multifunctional genome, reproduction, testis, ovary, pituitary, spermatogenesis, protease <a href="https://apkimuralab.com/">https://apkimuralab.com/</a>
	Associate Professor	OGIWARA Katsueki	ovary, ovulation, follicle selection, endocrine regulation, mouse, zebrafish, medaka <a href="https://sites.google.com/view/hokudai-ogiwara-lab-eng/home">https://sites.google.com/view/hokudai-ogiwara-lab-eng/home</a>

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## Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Soft Matter Materials Science	Professor	GONG Jian Ping	Soft & wet matter, polymer gel, double network gel, gel more durable than metal, self-healing gel, self-growing gel, bonding gel, thermal toughening gel, low friction gel, super lubricating gel, color changing gel, Sea glue gel, artificial cartilage, cell scaffold gel (1) <a href="https://altair.sci.hokudai.ac.jp/g2/index_e.html">https://altair.sci.hokudai.ac.jp/g2/index_e.html</a> (2) <a href="https://life.sci.hokudai.ac.jp/fa/lab/soft-matter-collaborative-research-unit">https://life.sci.hokudai.ac.jp/fa/lab/soft-matter-collaborative-research-unit</a>
	Associate Professor	NAKAJIMA Tasuku	
	Associate Professor	NONOYAMA Takayuki	
	Associate Professor	INDEI Tsutomu	
	Assistant Professor	LI Xueyu	
	Professor	KUROKAWA Takayuki	Polymer gel, Double network gel, Friction of gel, Artificial cartilage, Cell culture substrate, Soft composite material, Adsorption and adhesion, Donnan potential <a href="https://altair.sci.hokudai.ac.jp/tsl/">https://altair.sci.hokudai.ac.jp/tsl/</a>
	Assisitant Professor	YASUI Tomoki	
	Professor	IJIRO Kuniharu	Self-organization, self-assembly, functional device, biosensor, DNA, protein, biomolecule, cell, molecular recognition, drug delivery system, vaccine, gold nanoparticle, surface plasmon, stimuli- responsivity, capsule <a href="https://chem.es.hokudai.ac.jp/en/">https://chem.es.hokudai.ac.jp/en/</a>
	Associate Professor	MITOMO Hideyuki	
	Assistant Professor	YONAMINE Yusuke	
	Associate Professor	LI Xiang	Polymer solution, polymer gel, rubber, nanostructure, molecular dynamics, light scattering, X-ray scattering, neutron scattering, Raman spectroscopy, rheology, polymer synthesis, polymer physics <a href="https://www.xiangli-lab.com/en">https://www.xiangli-lab.com/en</a>

## Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Biomolecular Soft Matter	Associate Professor Assistant Professor	KIKUKAWA Takashi TSUKAMOTO Takashi	Photoactive proteins, photobiology, rhodopsin, optogenetics, directed molecular evolution, membrane protein, ion pump, membrane transport, transporter <a href="https://altair.sci.hokudai.ac.jp/infana/">https://altair.sci.hokudai.ac.jp/infana/</a>
	Professor Assistant Professor	AIZAWA Tomoyasu ARAI Tatsuya	protein science, structural biology, protein engineering, nuclear magnetic resonance (NMR), metabolome, biomarker research, gut microbiota, biological defense, innate immunity, antimicrobial peptides, allergen, cytokines, microbiological control <a href="https://altair.sci.hokudai.ac.jp/g5/english.php">https://altair.sci.hokudai.ac.jp/g5/english.php</a>
Soft Matter Biophysics	Professor Assistant Professor	HAGA Hisashi ISHIHARA Seiichiro	Cell Mechanics, Collective Cell Behavior, 3D Morphogenesis, Cancer Invasion, Atomic Force Microscopy <a href="https://altair.sci.hokudai.ac.jp/g3/">https://altair.sci.hokudai.ac.jp/g3/</a>
	Professor Associate Professor Assistant Professor	NAKAGAKI Toshiyuki NISHIGAMI Yukinori OHMURA Takuya	ciliate, amoeba, slime mold, protozoa, nematode, live cell imaging, field work, evolutionary ecology, biomechanics, locomotion, memory and learning, mathematical modeling, computer simulation, nonlinear dynamics, active soft matter, Belousov-Zhabotinski reaction, pattern formation, scaling theory, network of biochemical reactions <a href="https://pel.es.hokudai.ac.jp/">https://pel.es.hokudai.ac.jp/</a>
Soft Matter Medical Science	Associate Professor	TSUDA Masumi	biomaterial, cancer stem cell, molecular targeted therapy, regenerative medicine, cartilage regeneration, neuroregeneration <a href="http://patho2.med.hokudai.ac.jp">http://patho2.med.hokudai.ac.jp</a>
	Associate Professor	ONODERA Tomohiro	Orthopaedic Surgery, Joint Surgery, Regenerative Medicine, Musculoskeletal System, Animal Model, Scaffold, Cartilage, Bone, Meniscus, Biomaterials, Soft Matter, Clinical Application, Translational Research <a href="http://www.hokudaiseikei.jp/">http://www.hokudaiseikei.jp/</a>

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